

Appl. No. 10/748,830  
Amdt. Dated October 19, 2006  
Reply to Office Action of July 28, 2006

### REMARKS

Applicants submits that claim 1 is amended hereby; claim 6 is cancelled hereby; claim 4, 5, 7, 8, 10, 11 and 12-16 remain as previously presented; and claim 2, 3 and 9 stand as originally filed.

Support for the changes to claim 1 can be found within the specification (e.g., Paragraph [0011]).

### Claim Rejections - 35 USC §102

Claims 1-2, 16 are rejected under 35 U.S.C 102, as being anticipated by Gove et al. (US 5,489,952; hereinafter Gove et al '952).

Responsive to the rejection thereto, Applicants have amended independent claim 1 and hereby traverse this rejection and submit that independent claim 1 is novel, unobvious, and patentable over Gove et al '952, or any of the other cited references, taken alone or in combination.

Claim 1, as amended, recites in part:

a micro-mirror unit, the micro-mirror unit comprising a micro-mirror array comprising at least three micro-mirrors, each characterized with one single original color and each being configured so as to receive the white light beams incident thereupon, the white light beams having been emitted directly from the light source without being reflected; ....

Applicants submits that such a color projection display, as set forth

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in claim 1, is neither taught, disclosed, nor suggested by Gove et al '952 or any of the other cited references, taken alone or in combination.

Applicants acknowledge that Gove et al '952 discloses the direct illumination of a micromirror spatial light modulator 118 with light from an illumination source 120. However, Applicants submit that Gove et al '952 does not teach, disclose, or suggest the spatial light modulator 118 **"comprising a micro-mirror array comprising at least three micro-mirrors, each characterized with one single original color"**, as particularly set forth in amended claim 1.

Gove et al '952 teaches "The present invention ... addresses problems with spatial light modulator designs and algorithms that work together to present multiple video standards ..." (Column 1, lines 62-64) and teaches a display that supports multiple video standards (Column 1, lines 7-8). Gove et al '952 also teaches "...a spatial light modulator which uses the data, so when it is illuminated, it forms an image in the desired format" (Column 2, lines 1-3). For this purpose, the spatial light modulator 118 is a digital micromirror device with square pixels or with hexagonal pixels, so as to fit all of the formats onto the face of the spatial light modulator 118. As such, Applicants submit that the spatial light modulator 118 comprising micro-mirrors with **no color** cannot convert the white light beam into light with single colors for projecting and displaying images with full color, as per claim 1. Such a spatial light modulator 118 having micro-mirrors with **no color** can only reflect light beam directly to form a monochrome image in a desired format, according the algorithm and converted data processed by processing unit. Moreover, the specific modulator for the display should **cooperate with the processing unit** in Gove et al. '952 to arrive at its purpose of forming

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an image in the desired format. Gove et al '952 does not disclose or suggest that any other modulators comprising micro-mirrors with color can displace/replace the spatial light modulator 118.

Furthermore, Gove et al. '952 teaches "...forming a slanting surface off of which light could be reflected" (Column 6, lines 66-67). However, Gove et al. '952 mentions nothing about an on state and an off state, specifically not disclosing or suggesting "the micro-mirror unit not reflecting said light beams to the projection lens in the off state", as required by claim 1, as amended. Therefore, Applicants submit that such display system in Gove et al. '952 is different from the color projection display device as set forth in claim 1 essentially.

Accordingly, Applicants submit claim 1 is novel, unobvious, and patentable over Gove et al. '952. Reconsideration and withdrawal of the rejection and allowance of claim 1 is respectfully requested. Claims 2 and 16 depend from claim 1, respectively, and therefore should also be allowable.

**Claim Rejections - 35 USC §103**

Claims 3-7, 10, 15 are rejected under 35 U.S.C 103(a) as being unpatentable over Gove et al. in view of Hornbeck (US 5,583,688).

Responsive to the rejection of claims 3-7, 10, 15, Applicants submit that claims 3-5, 7, 10, 15 depend from directly or indirectly from claim 1, which is allowable for the reasons set forth above; and that claim 6 is cancelled. Accordingly, Applicants submit that claims 3-5, 7, 10, and 15 are now in condition for allowance, the allowance of which is hereby respectfully requested.

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**Claim Rejections - 35 USC §103**

Claims 8-9, 11-12 are rejected under 35 U.S.C 103(a) as being unpatentable over Yang (US 5,612,814; hereinafter Yang '814) in view of Gove et al. Please note that the statement of rejection is not uniform with the general rejection of claims 8-9, 11-12. Specifically, in the body of the rejection, the Examiner appears to treat Gove et al. '952 as the primary reference, not Yang '814, thus providing a clear source of confusion for Applicants in attempting to adequately address the rejection. Applicants submits that a change in this statement of rejection in a next Office Action to recite Gove et al. '952 as the primary reference and Yang '814 as the secondary reference (i.e., to accurately reflect the intended rejection in the current Office Action) could not be considered as having been necessitated by the present amendment. MPEP §706.07(a).

Responsive to the stated rejection of claims 8-9, 11-12, Applicants submits that such a color projection display as set forth in claims 8 and 11 are neither taught, disclosed, nor suggested by Gove et al. '952, Yang '814, or any of the other cited references, taken alone or in combination.

As mentioned above, Gove et al '952 does not teach, disclose, or suggest that any other modulators comprising a micro-mirror array having red micro-mirror, green mirror and blue mirror or comprising at least three micro-mirrors, each characterized with one single original color can displace the spatial light modulator 118 to form a color image. Applicants submits that such a color projection display as set forth in claims 8 and 11 is neither taught, disclosed, nor suggested by Gove et al '952 or any of the other cited references, including Yang '814, taken alone or in combination.

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While the Examiner has attempted to modify Gove et al. '952 with Yang '814, it has been held that **"the proposed modification cannot render the prior art unsatisfactory for its intended purpose "**, also that, **"such a modification cannot change the principle of operation of a reference"** (MPEP §2143.01).

Gove et al '952 teaches "The present invention ... addresses problems with spatial light modulator designs and algorithms that work together to present multiple video standards ..." (Column 1, lines 62-64), "After being processed by the algorithm, the converted data is passed to the addressing structure of the spatial light modulator..."(Column 5, lines 34-36), and "the modulator 410 typically consists of ... mirrors, ... The mirror, 420, is suspended by hinges on posts 416 over an air gap 418. On the other side of the air gap are two electrodes 412a and 412b which allow the mirror to be twisted about its hinges to one side or the other..."(Column 5, lines 40-46). A purpose of Gove et al. '952 is to provide a display that supports multiple video standards. Thus, the modulator should be a digital micromirror device (DMD) with certain pixels and structure, so as to fit all of the formats onto the face of the modulator using the data processed by the processing unit. Such a modulator and processing unit are critical to Gove et al. '952 in accordance with the intended purpose and **should be cooperated** to achieve this purpose. Therefore, alteration of one of them will render the prior art unsatisfactory for its intended purpose and likely will destroy the operational principle of the primary reference.

Furthermore, Yang '814 teaches that "[each] of the actuated mirrors 230 in the array 250 includes a pedestal 280, an actuator 240 cantilevered from the pedestal 280 and a mirror 260 formed on top of the actuator

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240, ... the mirror in each of the actuated mirrors 230 includes a bending portion 290 and an unbending portion 260, the unbending portion 260 referring to a portion of the mirror on top of a portion of the actuator 240 directly cantilevered on the pedestal 280..." (Column 4, lines 23-33). Apparently, the structure and principle of the modulator (i.e., DMD) in Yang '814 is quite different from that in the primary reference, i.e., Gove et al. '952. Beyond being more than not physically combinable, the difference in structure and operational principle of the DMD of Yang '814 is further evidence that such a combination would require a change in the principle of operation in Gove et al. '952. Applicants submit that the modulator in Gove et al. '952 cannot be replaced by the modulator in Yang '814 and **cannot cooperate with the processing unit** in Gove et al. '952, within the operational principle thereof. Moreover, a teaching or a suggestion to make such a claimed combination cannot be found in the cited prior art references, e.g., Gove et al. '952 and Yang '814.

Even if Gove et al. '952 could be combined with Yang '814, the combination does not disclose each and every limitation of claim 8 or 11. Neither Yang '814, nor Gove et al. '952 teaches, discloses, or suggests that "micro-mirror unit is configured for **being selectably switched between an on state and an off state** according to a driving signal, the micro-mirror unit reflecting light beams emitted from the light source to the projection lens in the on state, the micro-mirror unit **not reflecting** said light beams to the projection lens **in the off state . . .**" as set forth in claims 8 and 11.

Firstly, Gove et al. '952 teaches "...forming a slanting surface off of which light could be reflected" (Column 6, lines 66-67). However, Gove et al. '952 mentions/suggests nothing about an on state and an off

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state, specifically "the micro-mirror unit **not reflecting** said light beams to the projection lens in the off state".

Secondly, Yang '814 teaches that "[the] notations  $I_1$  and  $I_2$  in FIGS. 3B and 4B represent a portion of the primary light beam reflected by the unbending portion 260 of the actuated mirror 230 and the remaining portion of the primary light beam reflected by the bending portion 290 of the mirror on the actuated mirror 230 when and electric signal is applied thereto, respectively..." Further, Yang '814 provides that "...the portion of the primary light beam  $I_1$  reflected by the unbending portion 260 of the mirror might get projected onto the projection screen 90 as a color noise in case of the first preferred embodiment, whereas the portion of the light beam  $I_1$  shown in FIG. 4B gets disturbed by the diffusion bands of the black matrix 310 in the array of  $M \times N$  pixel filters 320, eliminating the possibility of occurrence of any color noise ..." (Column 5, lines 23-37).

In view of the description, the actuated mirror 230 in the micro-mirror array 250 in Yang '814 does not disclose or suggest the micro-mirror array presently claimed. When an electric signal is applied, both the bending portion and the unbending portion of the actuated mirror can reflect the primary light beam. Namely, Yang '814 indicates or suggests nothing about an **off state** according to a driving signal, in which the micro-mirror does **not reflect** the light beams to the projection lens, as per claims 8 and 11. Therefore, Yang '814 has not 8 states of projection to obtain the full color image.

Accordingly, claims 8 and 11 are submitted to be novel, unobvious, and patentable over Gove et al. '952 and Yang '814 or any of the other cited references, taken alone or in combination. Reconsideration and withdrawal of the rejection and allowance of claims 8 and 11 are

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respectfully requested. Claims 9 and 12 depend from claim 8 and 11, respectively, and therefore should also be allowable.


**Claim Rejections - 35 USC §103**

Claims 13-14 are rejected under 35 U.S.C 103(a) as being unpatentable over Gove et al. and Yang in view of Hornbeck (US5,583,688).

Claims 13 and 14 depend from allowable claims 11 and 8, respectively, and therefore should also be allowable.

In view of the foregoing, Applicants submits that the present application is now in condition for allowance, and an action to such effect is earnestly solicited.

Respectfully submitted,  
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